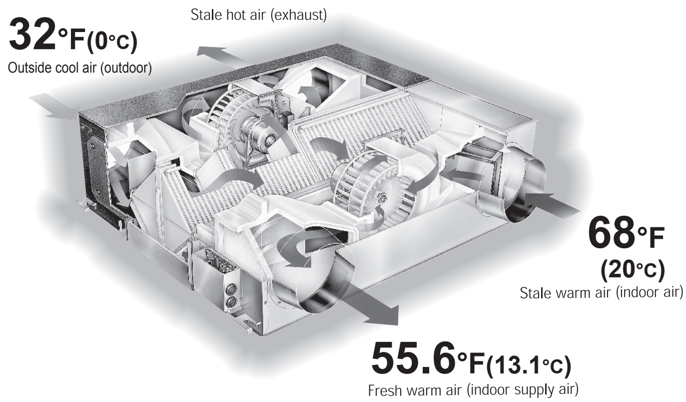
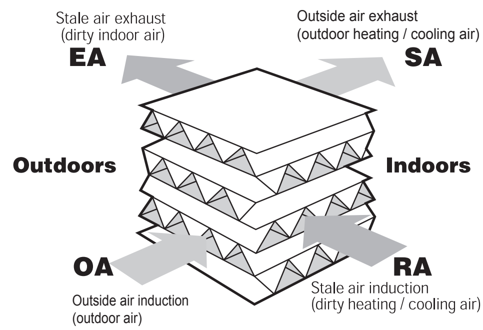
LGH-F-RX5-E

LOSSNAY is a perfect combination of heat recovery and ventilation, which is a leading edge product in the ventilation and air-conditioning field.

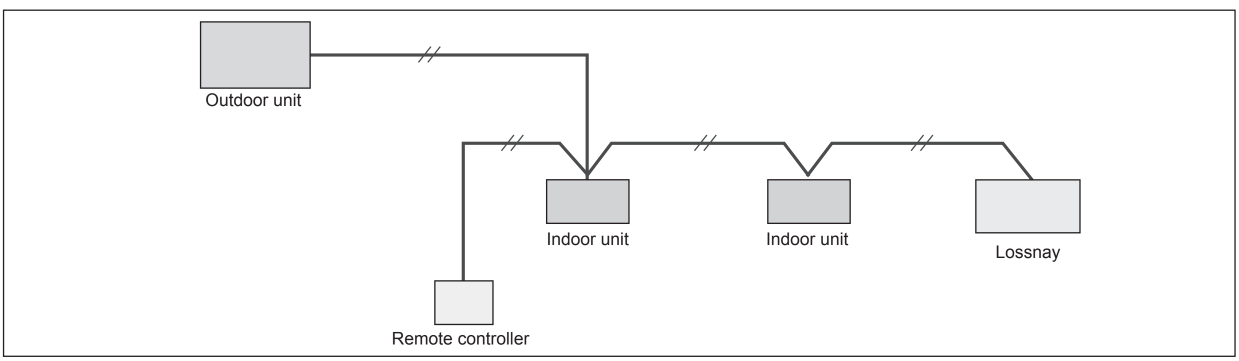
The LOSSNAY core is a special preserved paper made cross-flow and plate-fin structure, which is referable below.





* LGH-F300RX5-E (High fan speed)

CITY MULTI can combine LOSSNAY into the air conditioning system, performing the best solution to ventilation and air-conditioning.



Line up of LOSSNAY units



LGH-F300RX5-E	300 CFM	1-phase 208-230V, 60Hz
LGH-F470RX5-E	470 CFM	1-phase 208-230V, 60Hz
LGH-F600RX5-E	600 CFM	1-phase 208-230V, 60Hz
LGH-F1200RX5-E	1200 CFM	1-phase 208-230V, 60Hz

1. SPECIFICATIONS

LGH-F300RX5-E

Model		LGH-F300RX5-E							
Power source		Single phase 208-230V/60Hz							
Ventilation mode		Lossnay ventilation				Bypass ventilation			
Speed		Extra high	High	Low	Extra Low	Extra high	High	Low	Extra Low
Current (A)		1.33/1.35	1.12/1.18	0.81/0.86	0.32/0.36	1.33/1.35	1.12/1.18	0.81/0.86	0.32/0.36
Input (W)		274/300	232/268	168/197	67/82	274/300	232/268	168/197	67/82
Air volume	(CFM)	300/300	260/300	203/235	91/112	300/300	260/300	203/235	91/112
External static pressure	(In. W.G.)	0.60/0.78	0.46/0.54	0.28/0.33	0.06/0.08	0.60/0.78	0.46/0.54	0.28/0.33	0.06/0.08
Temperature recovery efficiency (%)		65.5/65.5	67.5/65.5	71/69	81/79	—	—	—	—
Enthalpy recovery efficiency (%)	Heating	63/63	65/63	68/66	79/77	—	—	—	—
	Cooling	50/50	52/50	55/53	63/61	—	—	—	—
Sound pressure level (dB<A>)	(Measured at 1.5m under the center of the unit)	34/37	30.5/33	25.5/27.5	18/18	35/37.5	31.5/34.5	25.5/28.5	18/18.5
Weight (lbs)		73							
Starting current		2.5A							

LGH-F470RX5-E

Model		LGH-F470RX5-E							
Power source		Single phase 208-230V/60Hz							
Ventilation mode		Lossnay ventilation				Bypass ventilation			
Speed		Extra high	High	Low	Extra Low	Extra high	High	Low	Extra Low
Current (A)		2.40/2.50	2.10/2.20	1.59/1.71	0.60/0.64	2.40/2.50	2.10/2.20	1.59/1.71	0.60/0.64
Input (W)		485/538	425/490	330/393	120/145	485/538	425/490	330/393	120/145
Air volume	(CFM)	470/470	420/470	330/365	147/177	470/470	420/470	330/365	147/177
External static pressure	(In. W.G.)	0.80/0.96	0.54/0.66	0.33/0.40	0.07/0.09	0.80/0.96	0.54/0.66	0.33/0.40	0.07/0.09
Temperature recovery efficiency (%)		69/69	70.5/69	74/72	82/80	—	—	—	—
Enthalpy recovery efficiency (%)	Heating	64/64	66/64	70/68	80/78	—	—	—	—
	Cooling	51/51	53/51	58/55	69/67	—	—	—	—
Sound pressure level (dB<A>)	(Measured at 1.5m under the center of the unit)	36/38	33/35.5	28.5/31	18/18.5	36/39	33/36	28.5/31.5	18/18
Weight (lbs)		119							
Starting current		4.5A							

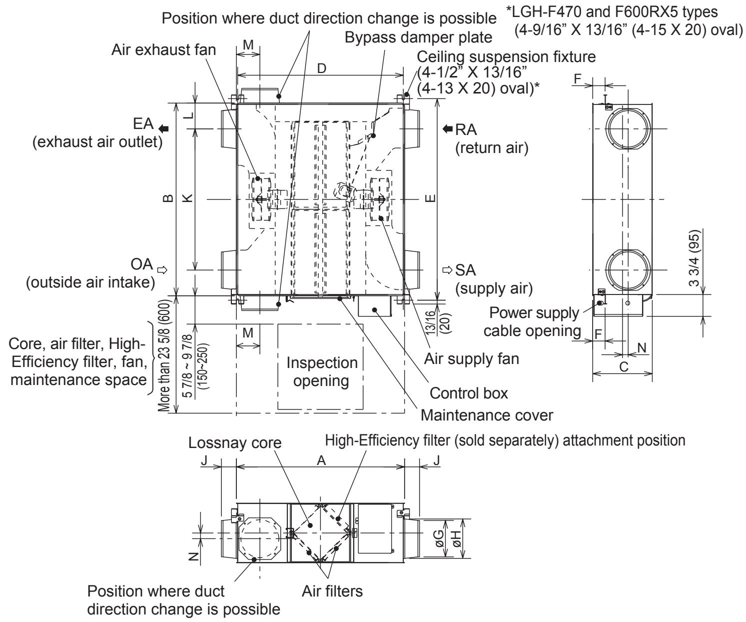
LGH-F600RX5-E

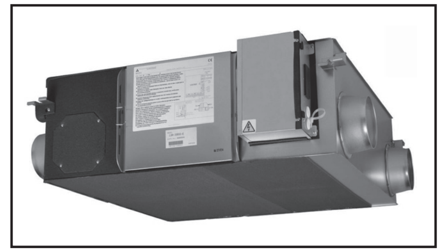
Model		LGH-F600RX5-E							
Power source		Single phase 208-230V/60Hz							
Ventilation mode		Lossnay ventilation				Bypass ventilation			
Speed		Extra high	High	Low	Extra Low	Extra high	High	Low	Extra Low
Current (A)		2.80/2.90	2.50/2.70	1.56/1.69	0.72/0.79	2.80/2.90	2.50/2.70	1.56/1.69	0.72/0.79
Input (W)		577/637	517/605	324/387	146/180	577/637	517/605	324/387	146/180
Air volume	(CFM)	600/600	520/600	370/430	200/235	600/600	520/600	370/430	200/235
External static pressure	(In. W.G.)	0.56/0.80	0.48/0.48	0.24/0.24	0.07/0.07	0.56/0.80	0.48/0.48	0.24/0.24	0.07/0.07
Temperature recovery efficiency (%)		67/67	68/67	75/73	80/78	—	—	—	—
Enthalpy recovery efficiency (%)	Heating	64/64	65/64	71/68	79/77	—	—	—	—
	Cooling	50/50	53/50	59/56	68/67	—	—	—	—
Sound pressure level (dB<A>)	(Measured at 1.5m under the center of the unit)	36/38	34/36.5	26.5/29	19/21	37/39	35/37.5	27/30	18.5/20
Weight (lbs)		132							
Starting current		5.0A							

LGH-F1200RX5-E

Model		LGH-F1200RX5-E					
Power source		Single phase 208-230V/60Hz					
Ventilation mode		Lossnay ventilation			Bypass ventilation		
Speed		Extra high	High	Low	Extra high	High	Low
Current (A)		5.7/5.8	5.0/5.3	3.1/3.4	5.8/5.8	5.1/5.4	3.1/3.4
Input (W)		1185/1303	1040/1219	639/765	1185/1303	1040/1219	639/765
Air volume	(CFM)	1200/1200	1012/1200	695/824	1200/1200	1012/1200	695/824
External static pressure	(In. W.G.)	0.43/0.75	0.43/0.43	0.20/0.20	0.43/0.75	0.43/0.43	0.20/0.20
Temperature recovery efficiency (%)		67/67	68/67	75/73	—	—	—
Enthalpy recovery efficiency (%)	Heating	64/64	65/64	71/68	—	—	—
	Cooling	50/50	53/50	59/56	—	—	—
Sound pressure level (dB<A>)	(Measured at 1.5m under the center of the unit)	38/40.5	36/39	29/32	40/42.5	38/41	30.5/33.5
Weight (lbs)		265					
Starting current		10.0A					

LGH-F300,470,600RX5-E





Accessory parts

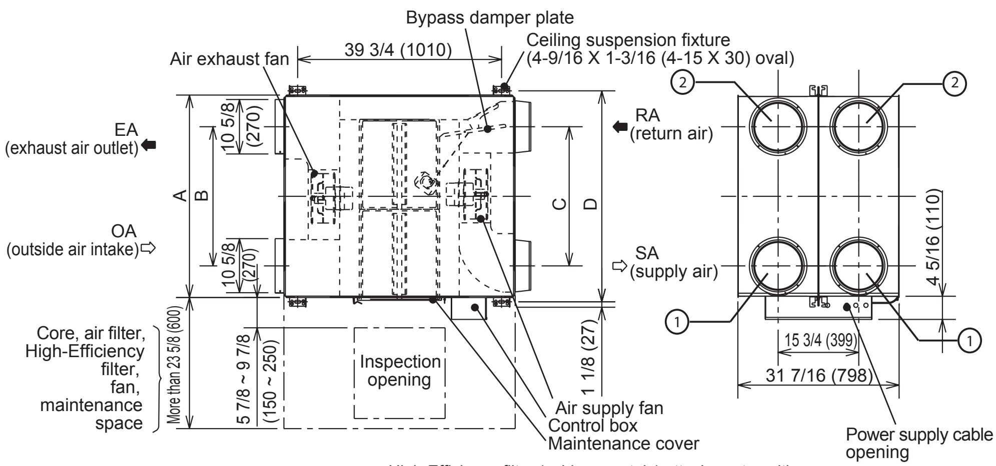
- Mounting screws x16
- Duct connecting flanges x4
  (double flanges at SA and EA sides)
- P-Series - Lossnay connection cable
  (gray: two wires) x1

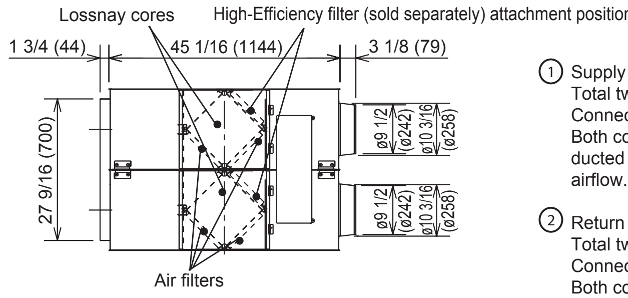
Unit: Inch (mm)

Model	Dimensions			Ceiling suspension fixture pitch			Nominal diameter	Duct connecting flange			Duct pitch				Weight
	A	B	C	D	E	F		G	H	J	K	L	M	N	
LGH-F300 RX5	34 15/16 (888)	40 (1016)	12 3/8 (315)	34 1/2 (875)	41 7/8 (1063)	2 9/16 (65)	7 7/8 (200)	7 9/16 (192)	8 3/16 (208)	3 1/8 (79)	29 3/8 (745)	5 5/16 (135.5)	4 7/8 (124)	1 3/16 (30)	73 lbs (33 kg)
LGH-F470 RX5	45 1/16 (1144)	39 1/2 (1004)	15 3/4 (399)	39 3/4 (1010)	40 13/16 (1036)	15 5/16 (389)	9 7/8 (250)	9 1/2 (242)	10 3/16 (258)	3 1/8 (79)	27 3/16 (690)	6 3/16 (157)	6 1/2 (165)	–	119 lbs (54 kg)
LGH-F600 RX5	45 1/16 (1144)	48 1/2 (1231)	15 3/4 (399)	39 3/4 (1010)	49 3/4 (1263)	15 5/16 (389)	9 7/8 (250)	9 1/2 (242)	10 3/16 (258)	3 1/8 (79)	36 1/8 (917)	6 3/16 (157)	6 1/2 (165)	–	132 lbs (60 kg)

2. DIMENSION DRAWINGS

LGH-F1200RX5-E





① Supply Air Connection. Total two (2) Supply Air Connections on this unit. Both connection must be ducted to achieve full airflow.

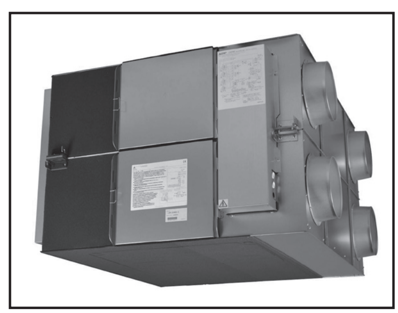
② Return Air Connection. Total two (2) Return Air Connections on this unit. Both connections must be ducted to achieve full airflow.

Accessory parts

- Duct connecting flanges x4
- Mounting screws x16
- P-Series - Lossnay connection cable (gray: two wires) x1

Unit: Inch (mm)

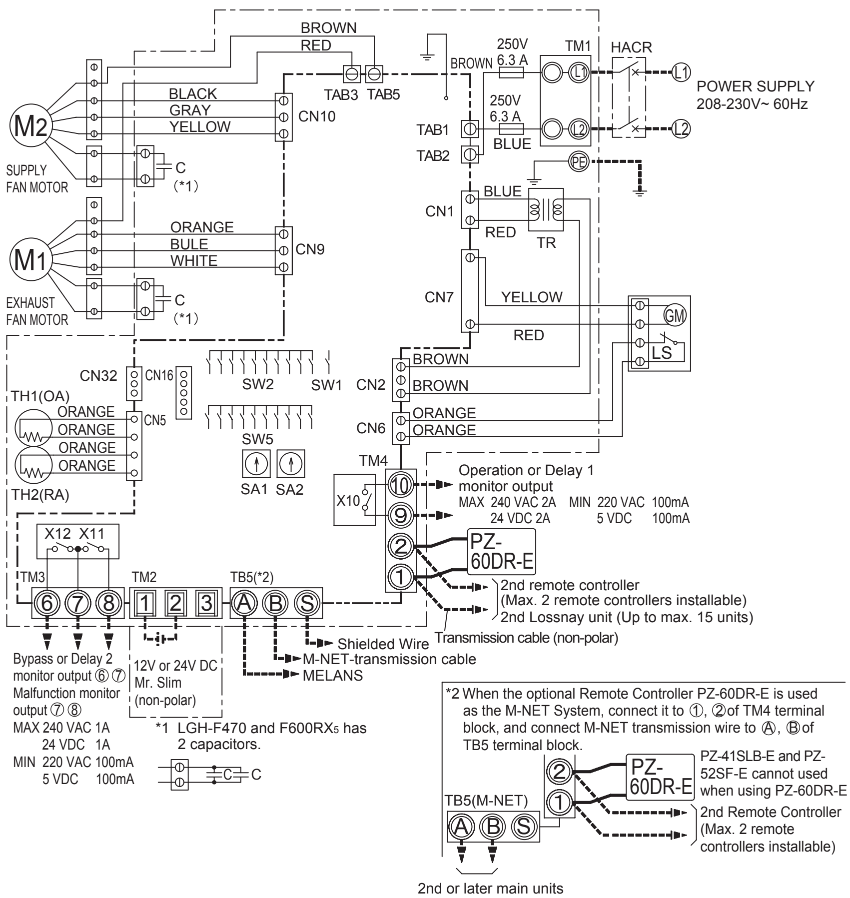
Model	A	B	C	D	Weight
LGH-F1200 RX5	48 1/2 (1231)	36 1/8 (917)	36 1/8 (917)	50 1/8 (1272)	265 lbs (120 kg)



3. WIRING DIAGRAMS

3-1. Wiring Diagrams

LGH-F300, 470, 600RX5



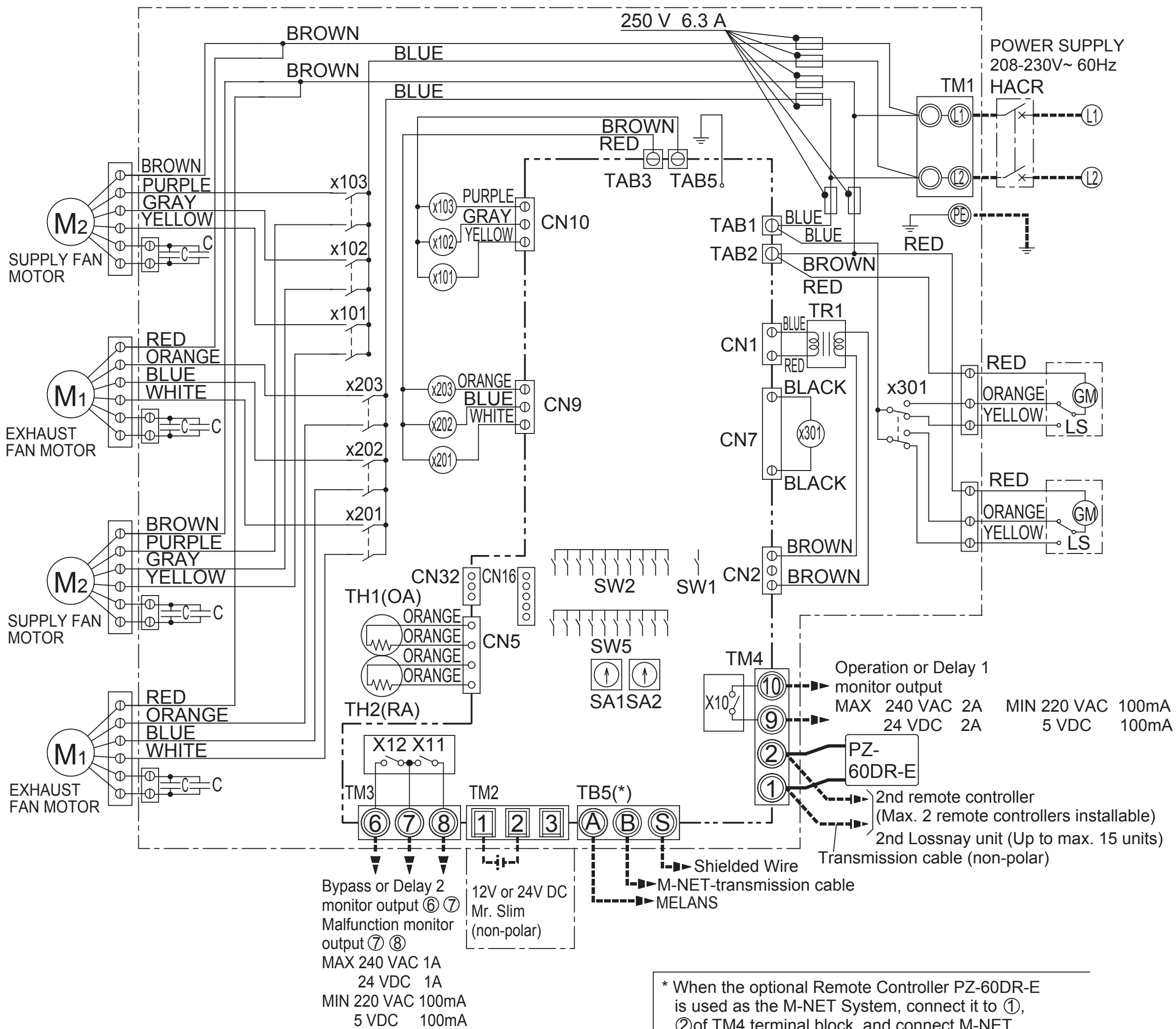
Definition of symbols	
M1:	Motor for exhaust fan
M2:	Motor for supply fan
C:	Capacitor
GM:	Motor for Bypass movement
LS:	Micro switch
TH1:	Thermistor for outside air
TH2:	Thermistor for return air
SW1:	Switch (Main/sub change)
SW2, 5:	Switch (Function selection)
TM1:	Terminal block (Power supply)
TM2:	Terminal block (External control input)
TM3:	Terminal block (Monitor output)
TM4:	Terminal block (Transmission cable and monitor output)
TB5:	Terminal block (M-NET Transmission cable)
TAB1, TAB2:	Connector (Power supply)
TR:	Control circuit transformer
X10:	Relay contact
X11:	Relay contact
X12:	Relay contact
CN1:	Connector (Transformer primary)
CN2:	Connector (Transformer secondary)
CN5:	Connector (Thermistor)
CN6:	Connector (Micro switch)
CN7:	Connector (Motor for bypass operation)
TAB3:	Tab connector (Fan motor)
TAB5:	Tab connector (Fan motor)
CN9:	Connector (Fan motor)
CN10:	Connector (Fan motor)
CN16:	Connector (High/Low/Extra Low/BY-PASS switch)
CN32:	Connector (Remote control selection)
SA1:	Address setting rotary switch (10 digit)
SA2:	Address setting rotary switch (1 digit)
LED1:	Inspection indicator lamp
LED2:	Inspection indicator lamp
LED4:	Power supply indicator lamp
SYMBOL ◎ ◻	: Terminal block
⏀	: Connector
⏀ (boxed)	: Board insertion connector or fastening connector of control board.

MITSUBISHI ELECTRIC CORPORATION

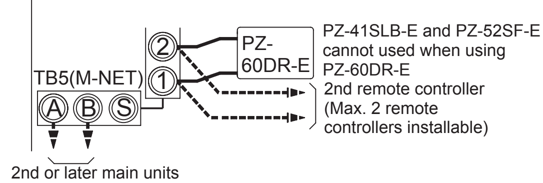
3. WIRING DIAGRAMS

3-1. Wiring Diagrams

LGH-F1200RX5



* When the optional Remote Controller PZ-60DR-E is used as the M-NET System, connect it to ①, ②of TM4 terminal block, and connect M-NET transmission wire to Ⓐ, Ⓑ of TB5 terminal block.



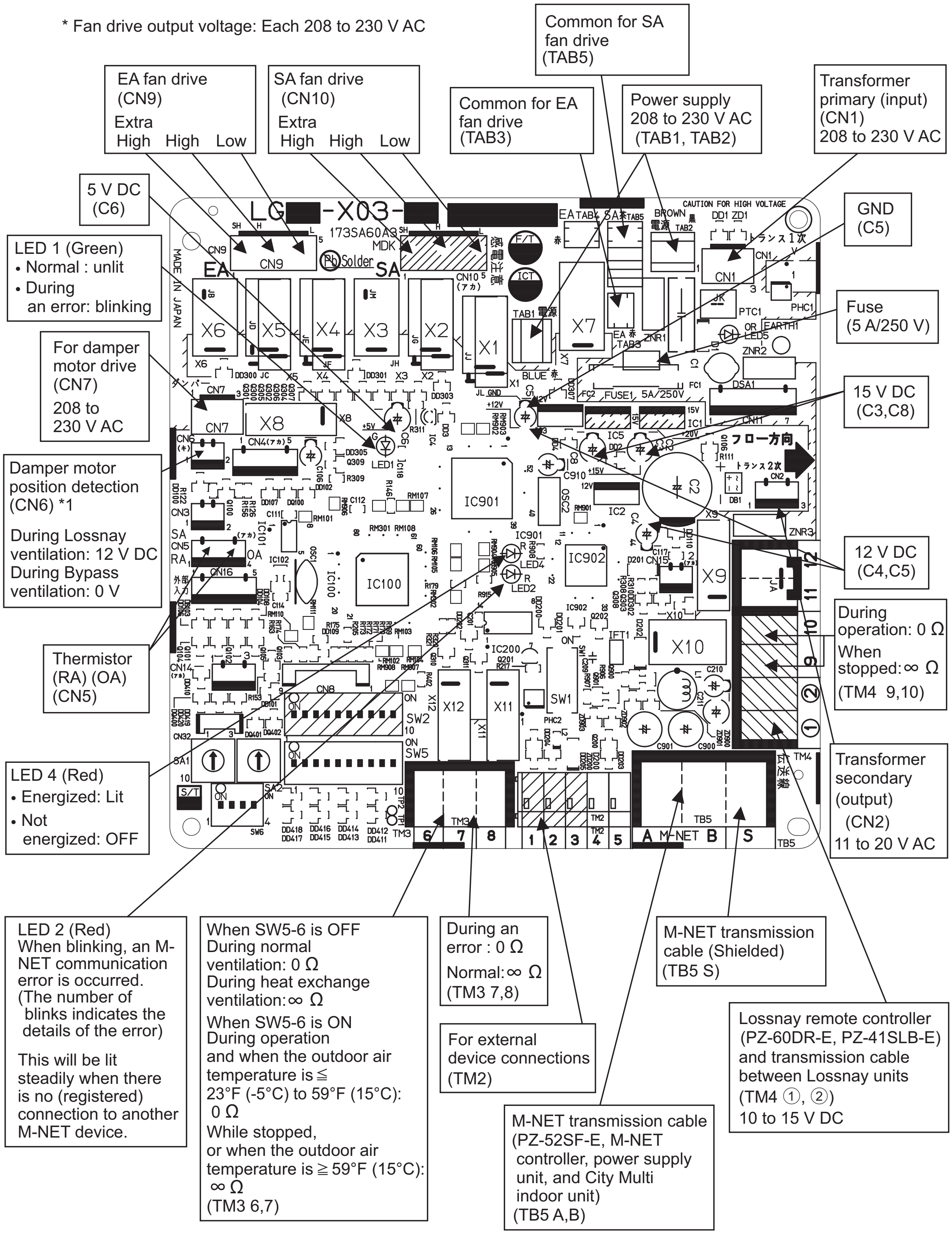
Definition of symbols		
M1: Motor for exhaust fan	TM4: Terminal block (Transmission cable and monitor output)	TAB3: Tab connector (Fan motor)
M2: Motor for supply fan		TAB5: Tab connector (Fan motor)
C: Capacitor	TB5: Terminal block (M-NET Transmission cable)	CN9: Connector (Fan motor)
GM: Motor for Bypass movement	TAB1, TAB2: Connector (Power supply)	CN10: Connector (Fan motor)
LS: Micro switch	TR1: Control circuit transformer	CN16: Connector (High/Low/BY-PASS switch)
TH1: Thermistor for outside air	X10, X11, X12: Relay contact	CN32: Connector (Remote control selection)
TH2: Thermistor for return air	X101, X102, X103: Relay Supply fan speed control	SA1: Address setting rotary switch (10 digit)
SW1: Switch (Main/sub change)	X201, X202, X203: Relay Exhaust fan speed control	SA2: Address setting rotary switch (1 digit)
SW2, 5: Switch (Function selection)	X301: Relay Motor for Bypass movement	SYMBOL ◎ ▣ : Terminal block
TM1: Terminal block (Power supply)	CN1: Connector (Transformer primary)	⦶ : Connector
TM2: Terminal block (External control input)	CN2: Connector (Transformer secondary)	⊡ : Board insertion connector or fastening connector of control board.
TM3: Terminal block (Monitor output)	CN5: Connector (Thermistor)	
	CN7: Connector (Motor for Bypass operation)	

3. WIRING DIAGRAMS

3-2. Circuit board diagram

● Circuit board diagram and check points

* Fan drive output voltage: Each 208 to 230 V AC

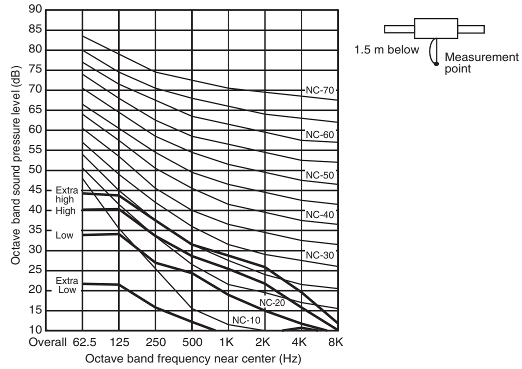


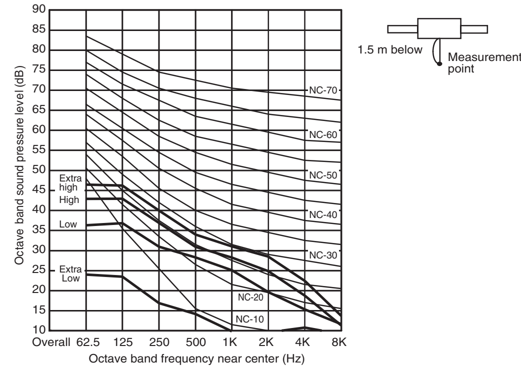
*1: Damper position detection input is only for the LGH-F300 to F600 types, and not for the LGH-F1200 type.

4. SOUND NC CURVES

LGH-F300RX5-E

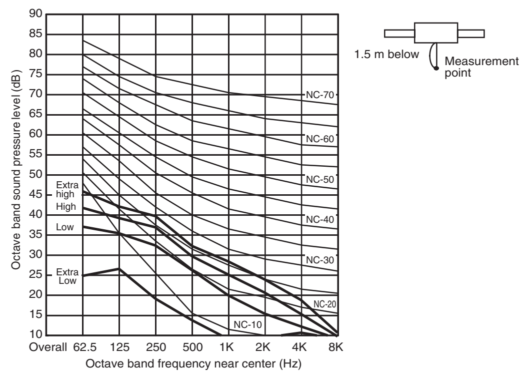
Background noise	: 25 dB or less (A range)	Background noise	: 25 dB or less (A range)
Measurement site	: Anechoic chamber	Measurement site	: Anechoic chamber
Operation conditions	: Lossnay ventilation	Operation conditions	: Lossnay ventilation
Power supply	: 208 V 60 Hz	Power supply	: 230 V 60 Hz

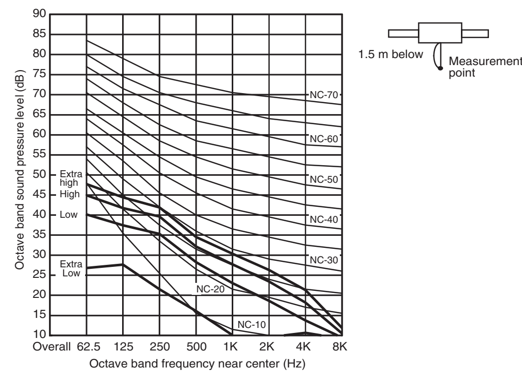




LGH-F470RX5-E

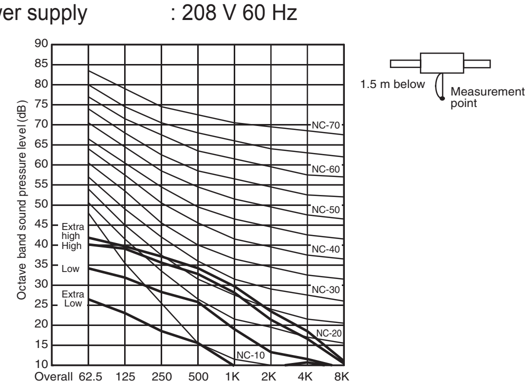
Background noise	: 25 dB or less (A range)	Background noise	: 25 dB or less (A range)
Measurement site	: Anechoic chamber	Measurement site	: Anechoic chamber
Operation conditions	: Lossnay ventilation	Operation conditions	: Lossnay ventilation
Power supply	: 208 V 60 Hz	Power supply	: 230 V 60 Hz

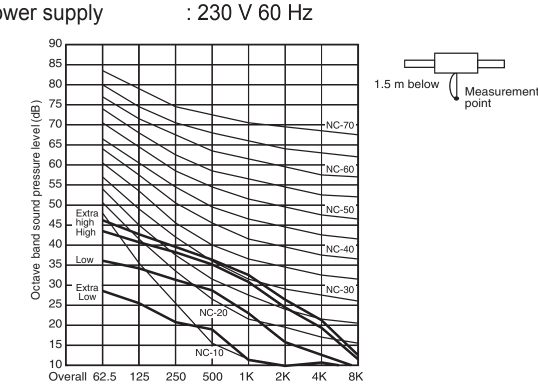




LGH-F600RX5-E

Background noise	: 25 dB or less (A range)	Background noise	: 25 dB or less (A range)
Measurement site	: Anechoic chamber	Measurement site	: Anechoic chamber
Operation conditions	: Lossnay ventilation	Operation conditions	: Lossnay ventilation
Power supply	: 208 V 60 Hz	Power supply	: 230 V 60 Hz

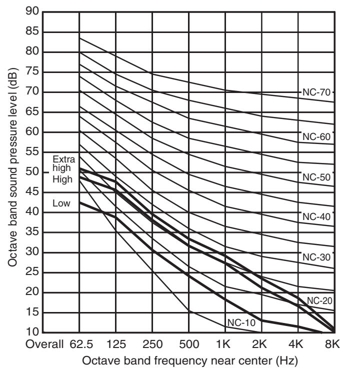


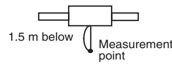


4. SOUND NC CURVES

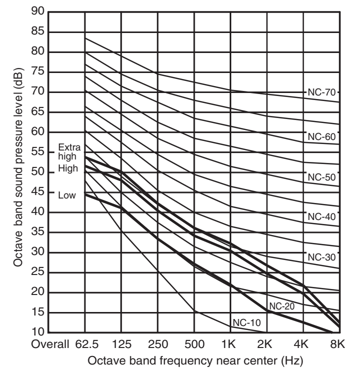
LGH-F1200RX5-E

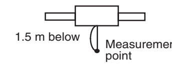
Background noise : 25 dB or less (A range)
Measurement site : Anechoic chamber
Operation conditions : Lossnay ventilation
Power supply : 208 V 60 Hz





Background noise : 25 dB or less (A range)
Measurement site : Anechoic chamber
Operation conditions : Lossnay ventilation
Power supply : 230 V 60 Hz





5. EFFICIENCY AND FAN CURVES

5-1. Efficiency Calculation

The Lossnay Core's energy recovery efficiency can be considered using the following three transfer rates:

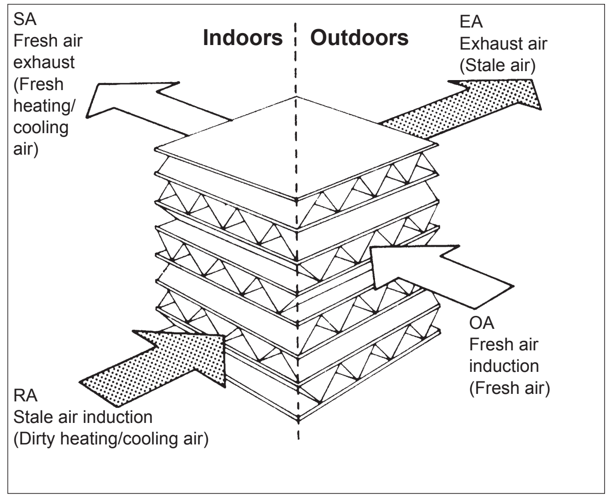
(1) Temperature (sensible heat) recovery efficiency

(2) Humidity (latent heat) recovery efficiency

(3) Enthalpy (total heat) recovery efficiency

The energy recovery effect can be calculated if two of the above efficiencies are known.

- Each energy efficiency can be calculated with the formulas in the table.
- When the supply and exhaust air volumes are equal, the energy recovery efficiencies on the supply and exhaust sides are the same.
- When the supply and exhaust air volumes are not equal, the total energy recovery efficiency is low if the exhaust volume is lower, and high if the exhaust volume is higher.



Item	Formula
Temperature recovery efficiency (%)	$\eta t = \left(\frac{t_{OA} - t_{SA}}{t_{OA} - t_{RA}} \right) \times 100$
Enthalpy recovery efficiency (%)	$\eta i = \left(\frac{i_{OA} - i_{SA}}{i_{OA} - i_{RA}} \right) \times 100$

η: Efficiency (%)

t : Dry bulb temperature (°F, °C)

i : Enthalpy (Btu/lb, kJ/kg)

Calculation of Supply Air Condition After Passing Through Lossnay

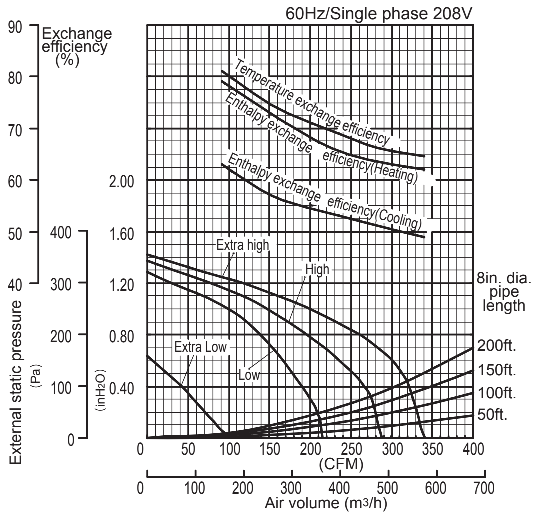
If the Lossnay energy recovery efficiency and the conditions of the room and outdoor air are known, the conditions of the air entering the room and the air exhausted outdoors can be determined with the following formulas in the following table.

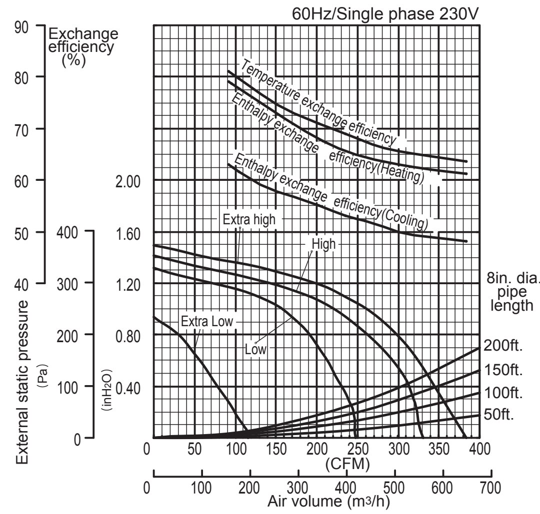
	Supply Side	Exhaust Side
Temperature	$t_{SA} = t_{OA} - (t_{OA} - t_{RA}) \times \eta t$	$t_{EA} = t_{RA} + (t_{OA} - t_{RA}) \times \eta t$
Enthalpy	$i_{SA} = i_{OA} - (i_{OA} - i_{RA}) \times \eta i$	$i_{EA} = i_{RA} + (i_{OA} - i_{RA}) \times \eta i$

5. EFFICIENCY AND FAN CURVES

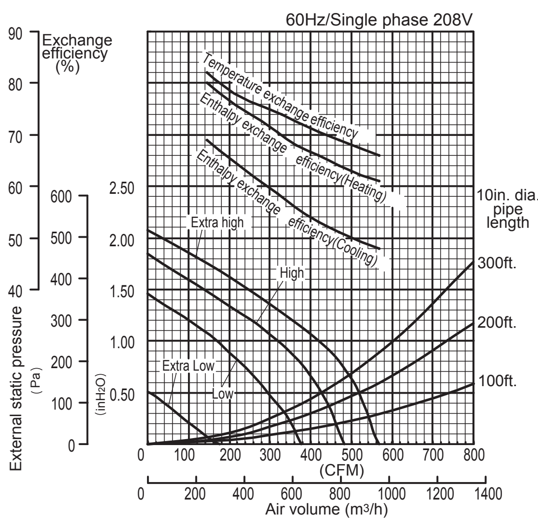
5-2. Efficiency Curve

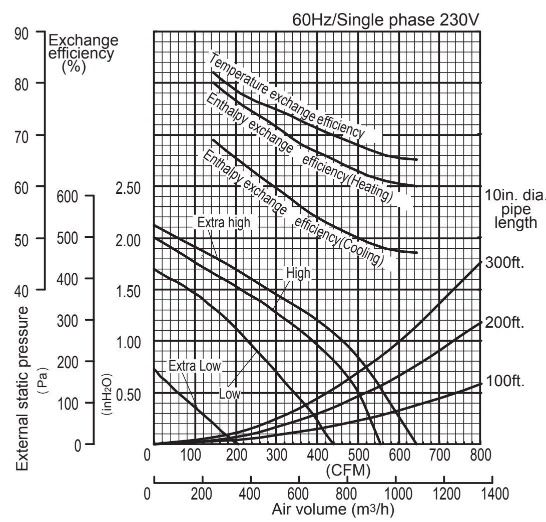
LGH-F300RX5-E



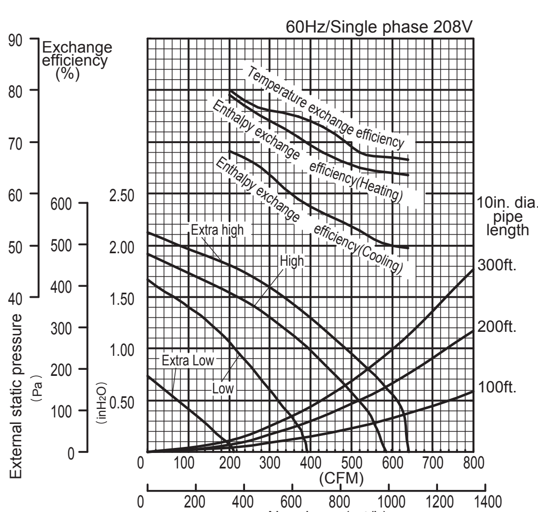


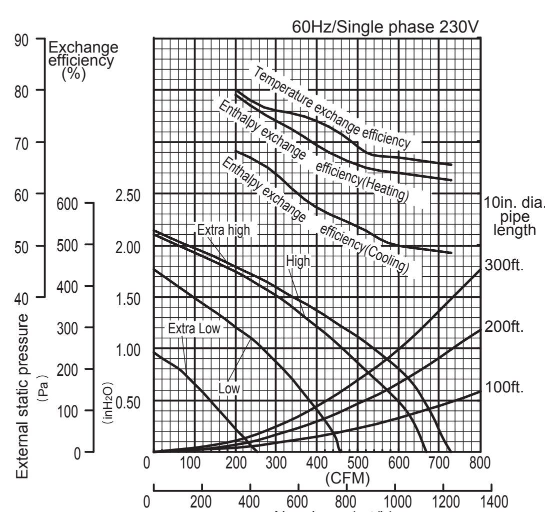
LGH-F470RX5-E



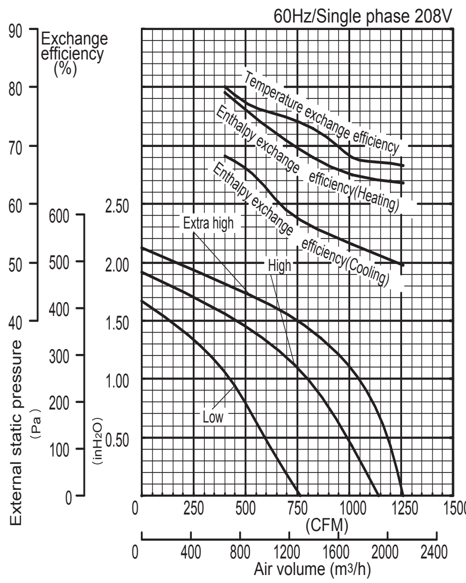


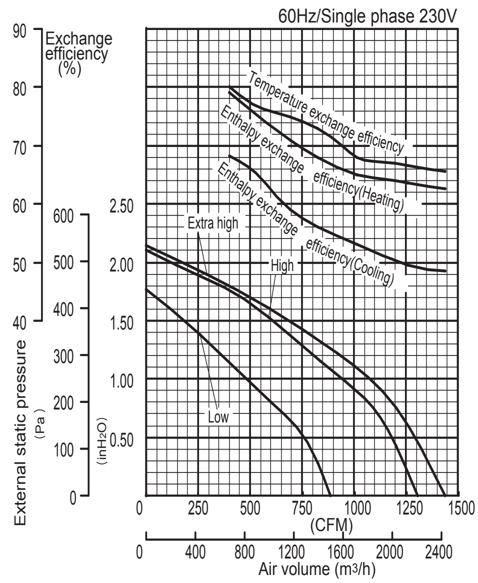
LGH-F600RX5-E





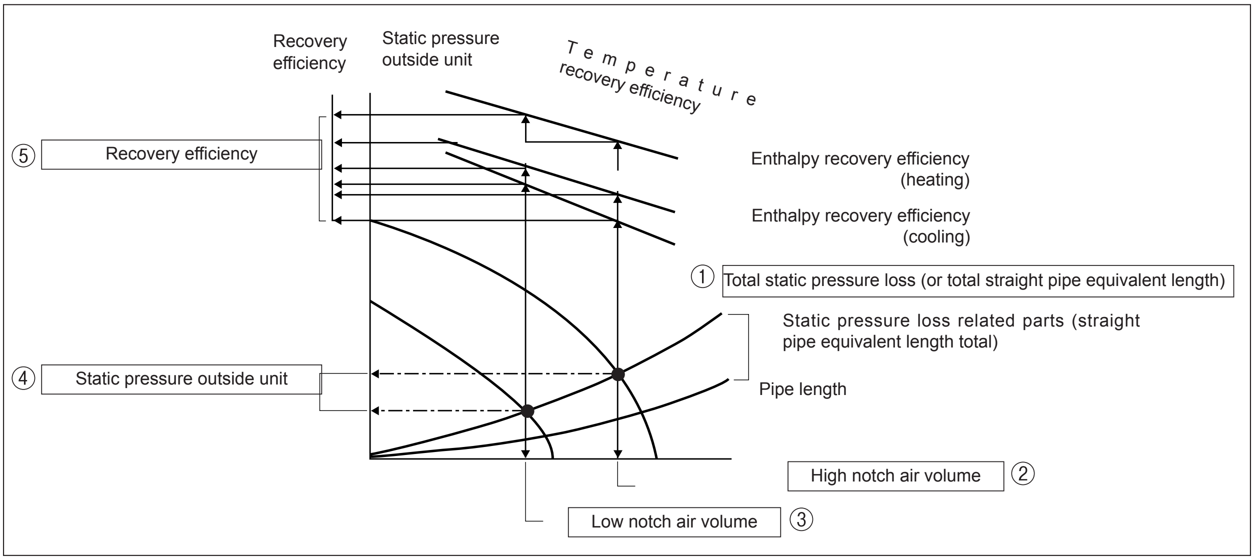
LGH-F1200RX5-E



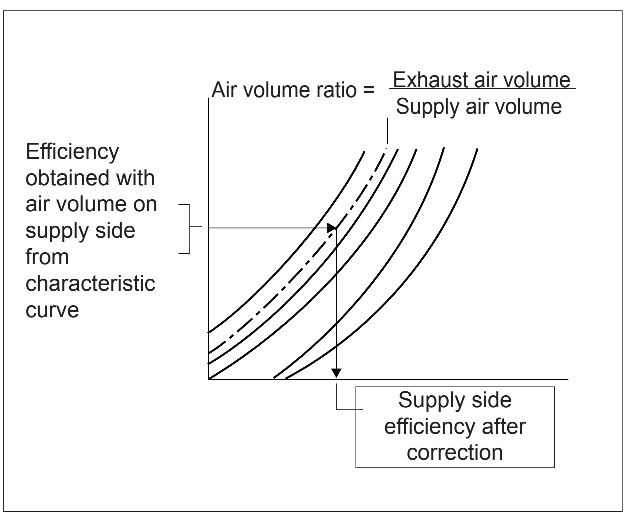


5-3. Exhaust Flow Correction

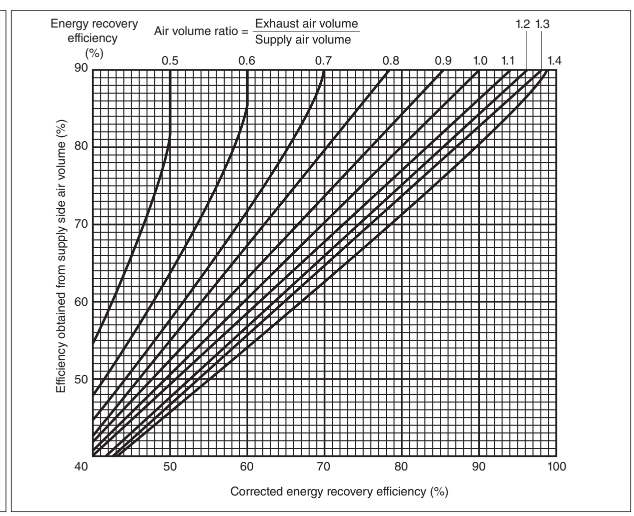
How to Read Characteristic Curve



- Obtaining the efficiency when supply air and exhaust air volumes are different.
  The efficiency obtained from the intake side air volume in each characteristic curve can be corrected with the air volume ratio in the bottom right chart.
  If the intake side and exhaust side duct lengths are greatly different or if a differential air volume is required, obtain the intake side efficiency from the bottom right chart.



Energy Recovery Efficiency Correction Curve



5-4. Exhaust Airflow Efficiency Corrections - Tabulated

LGH-F300RX5-E

Supply Volume = 300 CFM				
Exh Air Vol Ratio (Exh/Sup)	Exhaust Volume (cfm)	Cooling Enthalpy Efficiency	Heating Enthalpy Efficiency	Temp. Exchange Efficiency
1.4	420	55.2%	70.5%	73.4%
1.3	390	53.7%	68.2%	71.0%
1.2	360	52.6%	66.8%	69.5%
1.1	330	50.8%	64.9%	67.6%
1	**300**	**50.0%**	**63.0%**	**65.5%**
0.9	270	47.6%	59.8%	61.8%
0.8	240	46.0%	56.4%	58.4%
Low Speed	**235**	**45.7%**	**56.0%**	**58.0%**
0.7	210	44.2%	54.0%	55.8%
0.6	180	41.5%	49.6%	51.0%
0.5	150	37.8%	43.8%	44.8%

LGH-F470RX5-E

Supply Volume = 470 CFM				
Exh Air Vol Ratio (Exh/Sup)	Exhaust Volume (cfm)	Cooling Enthalpy Efficiency	Heating Enthalpy Efficiency	Temp. Exchange Efficiency
1.4	658	56.4%	71.6%	77.4%
1.3	611	54.8%	69.3%	74.8%
1.2	564	53.7%	67.8%	73.2%
1.1	517	51.9%	65.9%	71.4%
1	**470**	**51.0%**	**64.0%**	**69.0%**
0.9	423	48.6%	60.7%	64.4%
0.8	376	46.8%	57.2%	61.3%
Low Speed	**365**	**46.4%**	**56.6%**	**60.6%**
0.7	329	45.0%	54.7%	58.2%
0.6	282	42.2%	50.1%	52.9%
0.5	235	38.3%	44.2%	46.1%

LGH-F600RX5-E

Supply Volume = 600 CFM				
Exh Air Vol Ratio (Exh/Sup)	Exhaust Volume (cfm)	Cooling Enthalpy Efficiency	Heating Enthalpy Efficiency	Temp. Exchange Efficiency
1.4	840	55.2%	71.6%	75.1%
1.3	780	53.7%	69.3%	72.6%
1.2	720	52.6%	67.8%	71.1%
1.1	660	50.8%	65.9%	69.2%
1	**600**	**50.0%**	**64.0%**	**67.0%**
0.9	540	47.6%	60.7%	63.0%
0.8	480	46.0%	57.2%	59.6%
Low Speed	**430**	**44.5%**	**55.1%**	**57.3%**
0.7	420	44.2%	54.7%	56.8%
0.6	360	41.5%	50.1%	51.8%
0.5	300	37.8%	44.2%	45.4%

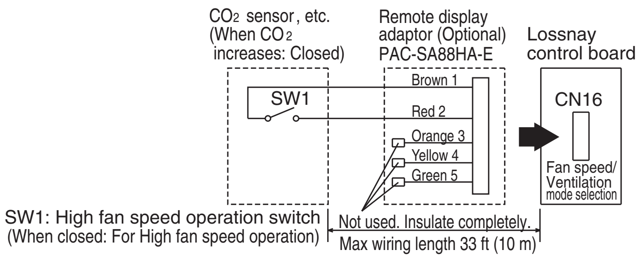
LGH-F1200RX5-E

Supply Volume = 1200 CFM				
Exh Air Vol Ratio (Exh/Sup)	Exhaust Volume (cfm)	Cooling Enthalpy Efficiency	Heating Enthalpy Efficiency	Temp. Exchange Efficiency
1.4	1680	55.2%	71.6%	75.1%
1.3	1560	53.7%	69.3%	72.6%
1.2	1440	52.6%	67.8%	71.1%
1.1	1320	50.8%	65.9%	69.2%
1	**1200**	**50.0%**	**64.0%**	**67.0%**
0.9	1080	47.6%	60.7%	63.0%
0.8	960	46.0%	57.2%	59.6%
0.7	840	44.2%	54.7%	56.8%
Low Speed	**824**	**43.8%**	**54.1%**	**56.1%**
0.6	720	41.5%	50.1%	51.8%
0.5	600	37.8%	44.2%	45.4%

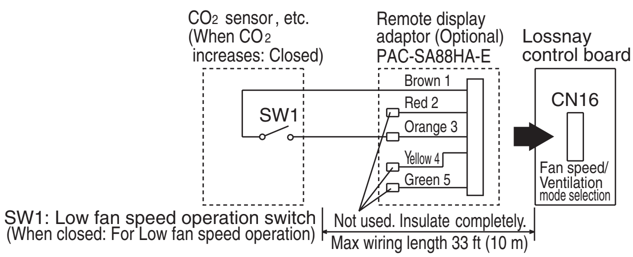
6. EXTERNAL CONTROL OF FAN SPEED / CO_2 CONTROL

When Switching High/Low/Extra-Low fan speed extern (when CO_2 sensor or other eqipment is connected)

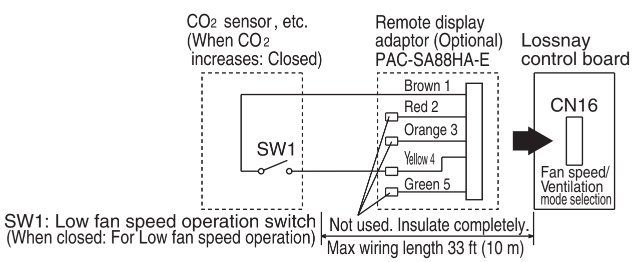
- To force High fan speed externally



- To force Low fan speed externally



- To force Extra-Low fan speed externally



7. ENTERING AIR TEMPERATURE OPERATING RANGE

	Main Unit Installation Conditions	OA (Outdoor Air) conditions	RA (Return Air) conditions
Commercial use Lossnay	14° F to 104° F -10° C to 40° C RH80% or less	5° F to 104°F -15° C to 40° C RH80% or less	14° F to 104° F -10° C to 40° C RH80% or less

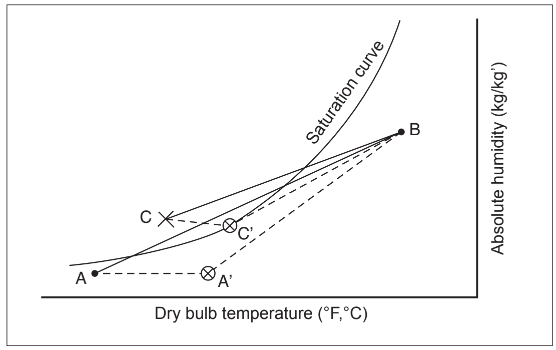
Pay special attention to extreme operating conditions.

Cold Weather Area Intermittent Operation

When the OA temperature falls below 14° F (-10° C) during operation, the SA-fan will change to intermittent operation. OFF for 10 minutes, ON for 60 minutes. Operation below 14° F is not reccomended without the use of a preheat coil to maintain outdoor air inlet conditions above 14° F. When outdoor temperature falls below 5° F the unit will cycle off. The unit will cycle back on 5 minutes out of every 60 minutes to determine if outdoor air temperature is above 5° F.

In Cold Climates with Outdoor Temperature of 23° F (–5° C) or Less

Plot the Lossnay intake air conditions A and B on a psychrometric chart (see right). If the high temperature side air B intersects the saturation curve such as at C, moisture condensation or frost will build on Lossnay. In this case, the low temperature side air A should be warmed up to the temperature indicated by Point A' so that Point C shifts to the Point C'.



In High Humidity Conditions with Relative Humidity of 80% or More

When using the system in high humidity conditions such as heated indoor pools, bathrooms, mushroom cultivation houses, high-fog areas etc., moisture will condense inside the Core, and drainage will occur. Lossnay units should not be used in these types of applications.

Other Special Conditions

- **Lossnay units cannot be installed in locations where toxic gases and corrosive elements such as acids, alkalis, organic solvents, oil mist or paints exist.**
- **Cannot be installed where heat is recovered from odiferous air and supplied to another area.**
- **Avoid installing in a location where unit could be damaged by salt or hot water.**

8. VENTILATION CONSIDERATIONS

Room air ventilation requirements are often governed by local state code. State codes typically reference the International Mechanical Code (IMC). This standard defers to and references within “ASHRAE Standard 62.1 Ventilation for Acceptable Indoor Air Quality”.

Standard 62.1 prescribes through its prescriptive compliance path ventilation rates for specific types of building spaces in order to maintain contaminant levels from off gassing of materials and bio-effluents from building occupants at acceptable levels as governed by the standard. Contaminants controlled by this standard include Ammonia, Benzene, Carbon Monoxide, Formaldehyde, TVOC, and several others.

It is important in any HVAC system design to ensure that these minimum ventilation rates are maintained or controlled based on occupancy during occupied hours in order to comply with this standard and maintain acceptable indoor air quality for building occupants.

A sample of typical ventilation rates required for some common building spaces per ASHRAE Standard 62.1-2010 are listed in the table below. Always consult local code / jurisdiction for specific requirements at location of project.

Ventilation Rate Excerpt
ASHRAE 62.1-2010, Table 6-1

Exh Air Vol Ratio (Exh/Sup)	People Rate (CFM)	Area Rate (CFM/ft^2)
Classroom (age 5-8)	10	0.12
Classroom (age 9 plus)	10	0.12
Media Center / Library	10	0.12
Restaurant Dining	7.5	0.18
Conference Room	5	0.06
Corridors	0	0.06
Hotel Room	5	0.06
Office Space	5	0.06
Bank Lobbies	7.5	0.06
Pharmacy	5	0.18
Auditorium	5	0.06
Retail Sales Floor	7.5	0.12
Gym (play area)	0	0.30
Gym (spectator area)	7.5	0.06

The uncorrected ventilation rate (Breathing Zone Outdoor Air – Per ASHRAE 62.1) for a give space per this standard, referencing the above table, would then be:

Uncorrected Space Ventilation (CFM) = (# of People) x (CFM/person from table) + (Space Area, ft^2) x (Area rate, CFM/ft^2 from table)

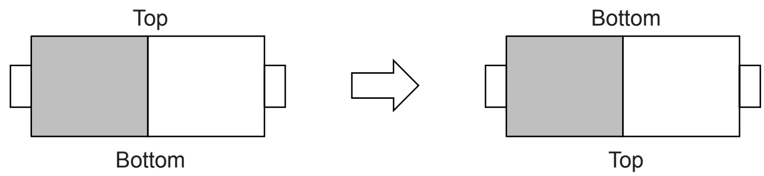
Other corrections to this ventilation rate must be made per the ASHRAE 62.1 standard for Air Distribution Effectiveness, Multiple-Zone Correction, as well as Occupant Diversity. Consult Chapter 6 of ASHRAE 62.1 for a complete explanation of these corrections.

9. INSTALLATION

9-1. Orientation

Top/bottom Reverse Installation

All LGH-RX5 models can be installed in top/bottom reverse.



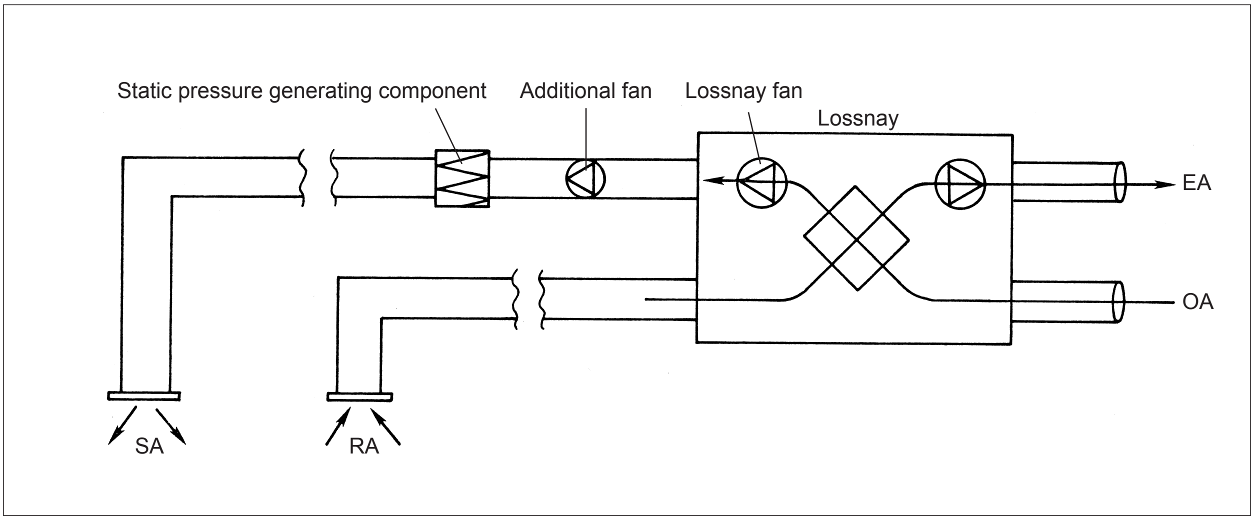
Vertical and Slanted Installation

All LGH-RX5 models should not be used in either vertical and slanted installation to avoid any problems (motor noise, water incoming etc).

9-2. Supplemental Fan Devices

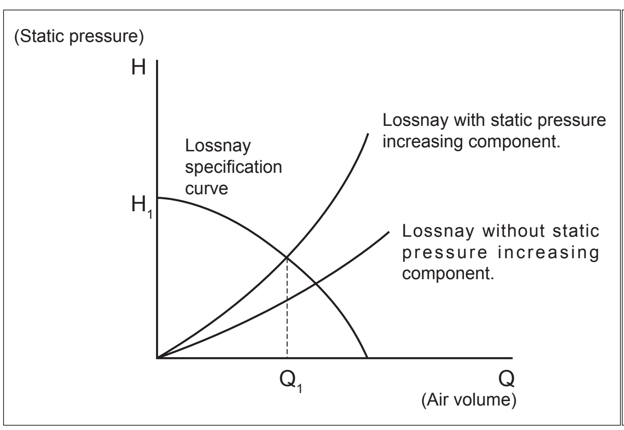
Installing Supplementary Fan Devices

On occasions it may be necessary to install additional fans in the ductwork following LGH-type Lossnay units because of the addition of extra components such as control dampers, high-efficiency filters, sound attenuators, etc. which create a significant extra static pressure to the airflow. An example of such an installation is as shown below.

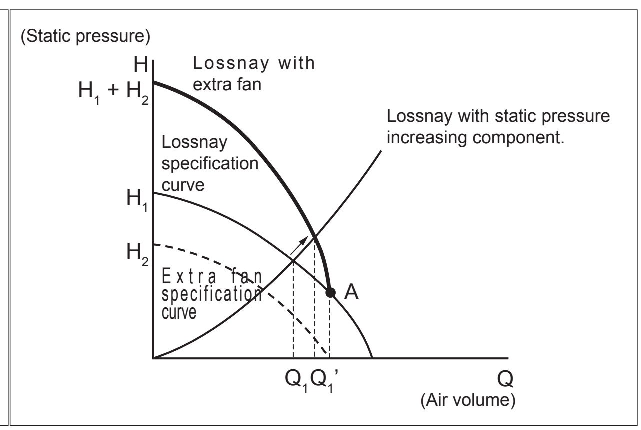


For such an installation, avoid undue stress on the fan motors. Referring to the diagrams below, Lossnay with extra fans should be used at the point of left side from A.

Q-H for Lossnay Without Extra Fan



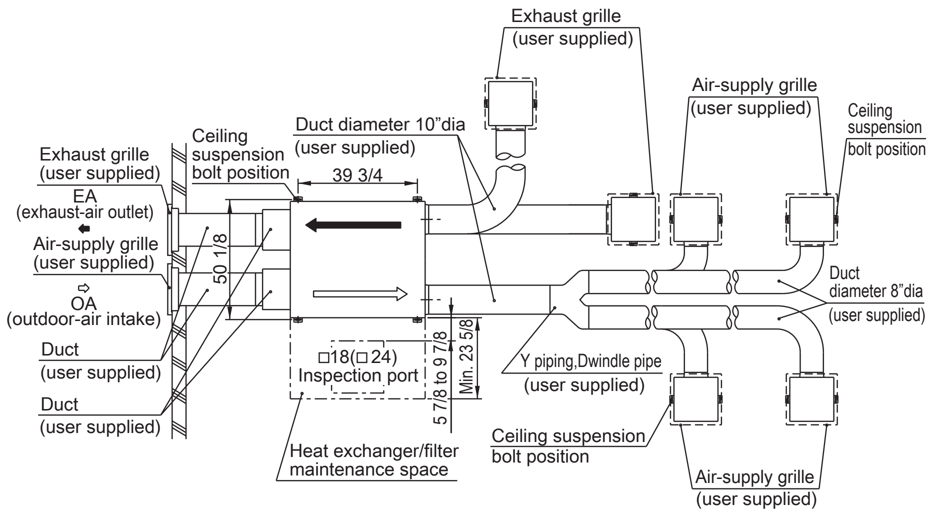
Q-H for Lossnay With Extra Fan



9-3 Ductwork Installation with LOSSNAY®

LGH-Series Lossnay Ceiling Embedded-Type
(LGH-RX5 Series)
LGH- F300 · F470 · F600RX5

■ Installation diagram



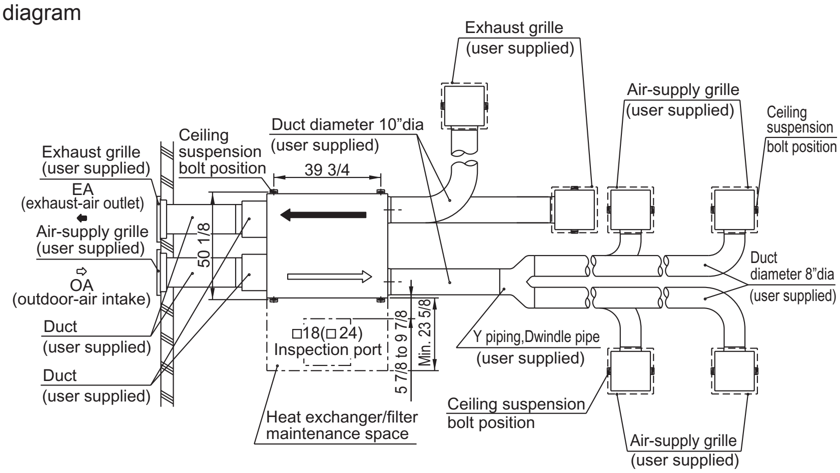
Unit (inch)

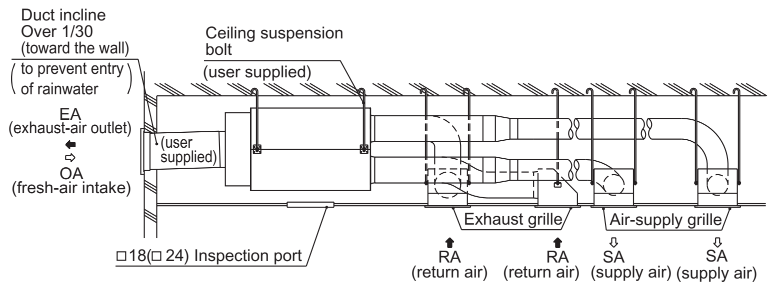
- Always leave inspection holes (18 sq. in. or 24 sq. in.) on the air filter and Lossnay Core removal side.
- Always insulate the two ducts outside the room (intake air and exhaust air ducts) to prevent condensation.
- It is possible to change the direction of the outside air ducts (OA and EA side).
- Do not install the vent cap or round hood where it will come into direct contact with rain water.

Air volume (CFM)	Model	Dimension	
		A	B
300	LGH-F300RX type	34 1/2	41 7/8
470	LGH-F470RX type	39 3/4	40 13/16
600	LGH-F600RX type	39 3/4	49 3/4

LGH- F1200RX5

■ Installation diagram



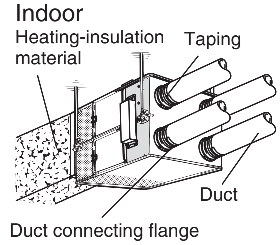


Unit (inch)

- Always leave inspection holes (18 sq. in. or 24 sq. in.) on the air filter and Lossnay Core removal side.
- Always insulate the two ducts outside the room (intake air and exhaust air ducts) to prevent condensation.
- If necessary, order a weather cover to prevent rain water from direct contact or entering the unit.

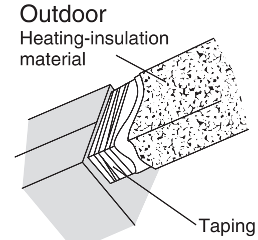
Ducting

Indoor

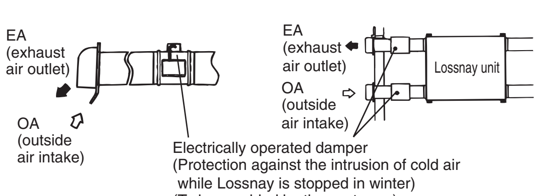


Should secure with airtight tape to prevent air leakage.

Outdoor



Should secure with airtight tape to prevent air leakage. Cover duct with insulation foam prevent condensation.



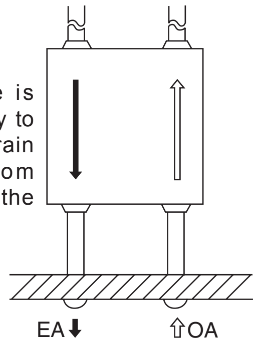
- In a region where there is risk of freezing in winter, it is recommended to install an Electrically operated damper, or the like, in order to prevent the intrusion of (cold) outdoor air while Lossnay is stopped.

9-3.1 Choosing the Duct Attachment

Choose between two directions for the outside duct (OA, EA) piping direction for alternative installation.

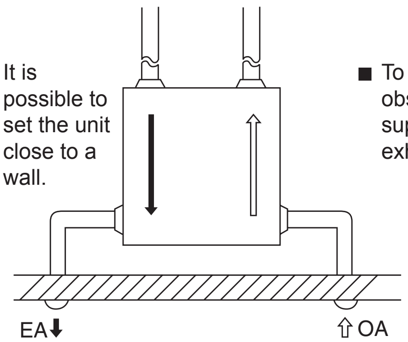
Standard Installation

*A space is necessary to prevent rain water from entering the unit.

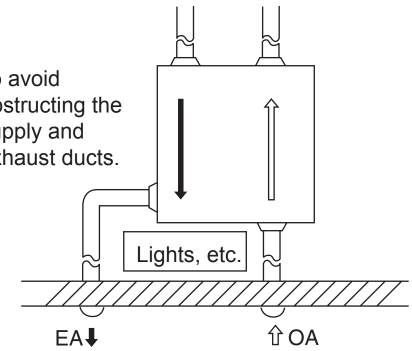


Alternative Installation

■ It is possible to set the unit close to a wall.



■ To avoid obstructing the supply and exhaust ducts.



9-3.2 Installation and Maintenance

(1) Always leave an inspection hole (□18) to access the filter and Lossnay Core.

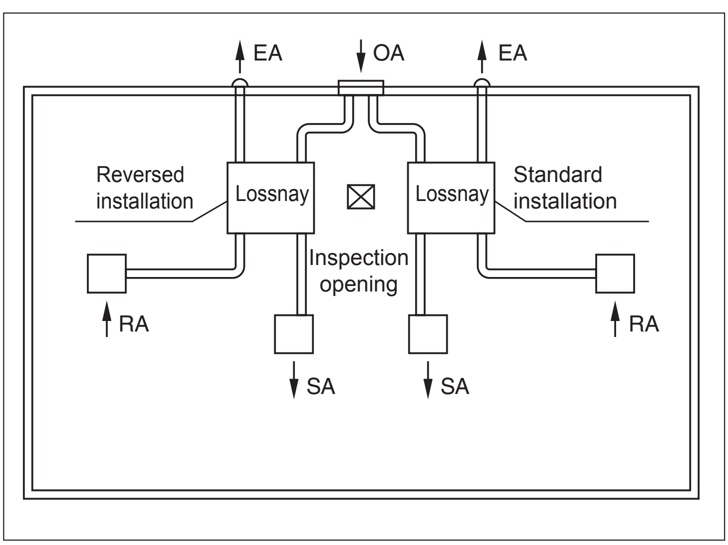
(2) Always insulate the two ducts outside the room (intake air and exhaust air ducts) to prevent frost from forming.

(3) Prevent rainwater from entering.
- Apply a slope of 1/30 or more towards the wall to the intake air and exhaust air ducts outside the room.
- Do not install the vent cap or round hood where it will come into direct contact with rainwater.

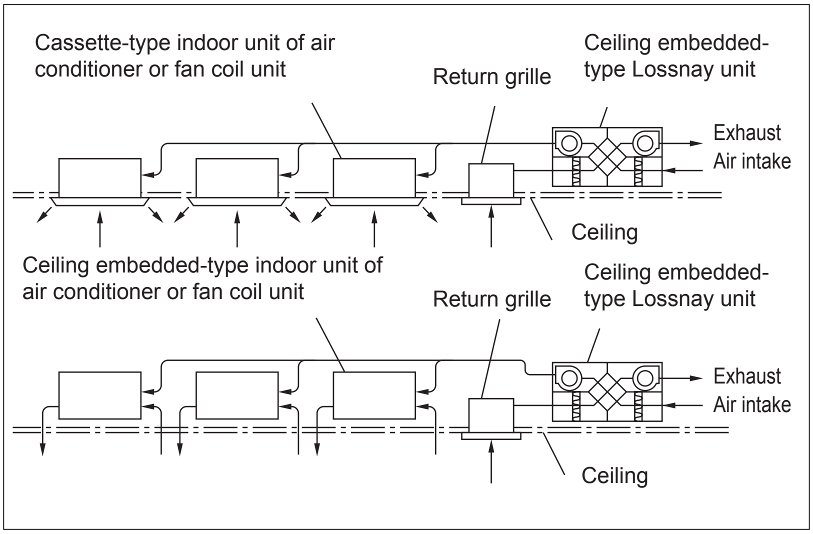
(4) Use the optional “control switch” (Ex. PZ-60DR-E, etc.) for the RX5-type.
A MELANS centralized controller can also be used.

9-3.3 Installation Applications

(1) Installing Two Units to One Outside Air Duct
The main unit’s supply outlet and suction inlet and the room side and outdoor side positions cannot be changed. However, the unit can be installed upside-down, and installed as shown below. (This is applicable when installing two units in one classroom, etc.)



(2) System Operation with Indoor Unit of Air Conditioner
There is an increased use of air conditioning systems with independent multiple air-conditioner unit due to their features such as improved controllability, energy conservation and saving space.
For these types of air conditioning systems, combining the operation of the dispersed air conditioners to Lossnay is possible.



10. FROST PREVENTION

Under the following conditions, Lossnay will force stop of the air supply fan. However, when the following conditions are met while operating at Extra Low fan speed, the air supply fan will stop, and the exhaust fan will operate at Low fan speed.
(When operating at Extra Low fan speed, the air supply fan and the exhaust fan cannot be stopped separately.)

- When P-Series is in defrost or stopped due to a fault, in an interlocked system with P-Series that has a duct connection with Lossnay.
(For cold inrush prevention, or falling dust prevention)
- When the indoor unit is in defrost, in an interlocked system with a CITY MULTI indoor unit that has a duct connection with Lossnay.
(For cold inrush prevention)
- When the outside temperature is 14° F (-10° C) or lower, the air supply fan is stopped periodically for approximately 10 minutes to 55 minutes. Operation below 14° F is not recommended without the use of a preheat coil to maintain outdoor air inlet conditions above 14° F. When outdoor temperature falls below 5° F the unit will cycle off. The unit will cycle back on 5 minutes out of every 60 minutes to determine if outdoor air temperature is above 5° F. Operation below 14° F is not recommended without the use of a pre heat coil to maintain outdoor air inlet conditions above 14° F.
When outdoor temperature falls below 5° F the unit will cycle off. The unit will cycle back on 5 minutes out of every 60 minutes to determine if outdoor air temperature is above 5° F.
(To prevent freezing of the Lossnay core)

11. VENTILATION MODES

Lossnay (heat exchange) ventilation or bypass (normal) ventilation is achieved by switching the air duct inside the Lossnay unit with a damper.

11.1 Ventilation Mode

There are three control modes.

- Lossnay ventilation (heat exchange ventilation) mode:
  Heat exchange ventilation is performed regularly via the Lossnay core.
- Bypass ventilation (normal ventilation) mode:
  Ventilation is performed regularly without going through the Lossnay core.
- Automatic ventilation mode:
  A temperature sensor built into the unit provides automatic ventilation to a suitable ventilation mode.
  In addition, energy saving ventilation is provided by interlocking with a P-Series or CITY MULTI indoor unit.

11.2 Damper control for each system

The control indicated below can be performed according to the system that is paired.

Caution

- Up to two of the Lossnay remote controllers PZ-60DR-E, PZ-41SLB-E, and PZ-52SF-E can be used in the same group, but they cannot be used together with a different remote controller. When using two remote controllers, be sure to use the same model of the remote controller.
- PZ-41SLB-E cannot be used in M-NET control. When controlling Lossnay in M-NET control, use PZ-60DR-E or PZ-52SF-E.

System		Remote controllers System controllers	Ventilation mode
Basic System	Stand-alone/multiple Lossnay and Lossnay remote controller: PZ-60DR-E	Lossnay remote controller PZ-60DR-E	The “Function selector” button of the remote controller permits ventilation mode switching for automatic, Lossnay, and bypass ventilation. Bypass ventilation is set at the time of night purge operation, and ventilation mode switching is not possible.
Basic System	Stand-alone/multiple Lossnay and Lossnay remote controller: PZ-41SLB-E	Lossnay remote controller PZ-41SLB-E	The “Function selector” button of the remote controller permits ventilation mode switching for automatic, Lossnay, and bypass ventilation.
Basic System	System interlocked with Mr. Slim	A-control remote controller K-control remote controller (Remote controller connection prohibited with Lossnay)	Fixed to automatic ventilation.
Basic System	Level signal/pulse signal output device and external device only	None	Fixed to automatic ventilation.
M- NET Control	Stand-alone/ multiple Lossnay and Lossnay remote controller: PZ-60DR-E	Lossnay remote controller PZ-60DR-E	The “Function selector” button of the remote controller permits ventilation mode switching for automatic, Lossnay, and bypass ventilation. Bypass ventilation is set at the time of night purge operation, and ventilation mode switching is not possible.
M- NET Control	Stand-alone/ multiple Lossnay and Lossnay remote controller: PZ-52SF-E	Lossnay remote controller PZ-52SF-E	The “Function selector” button of the remote controller permits ventilation mode switching for automatic, Lossnay, and bypass ventilation.
M- NET Control	M-NET Lossnay central control system	M-NET controller	The “Operation mode” button of the system remote controller and the centralized controller permits ventilation mode switching for automatic, Lossnay, and bypass ventilation. (The schedule timer, ON/OFF remote controller, and the group remote controller do not permit ventilation mode selection.)
M- NET Control	M-NET System interlocked with City Multi indoor units	ME remote controller PAR-F27MEA, MA remote controller PAR-20/21MAA	Fixed to automatic ventilation.

11.3 Bypass ventilation prohibited

When the conditions described below are applicable, the ventilation mode will be fixed at Lossnay ventilation When bypass ventilation has been set from the remote controller or the system controller, damper operation will be set to Lossnay ventilation, even though bypass ventilation is displayed on the ventilation mode display.

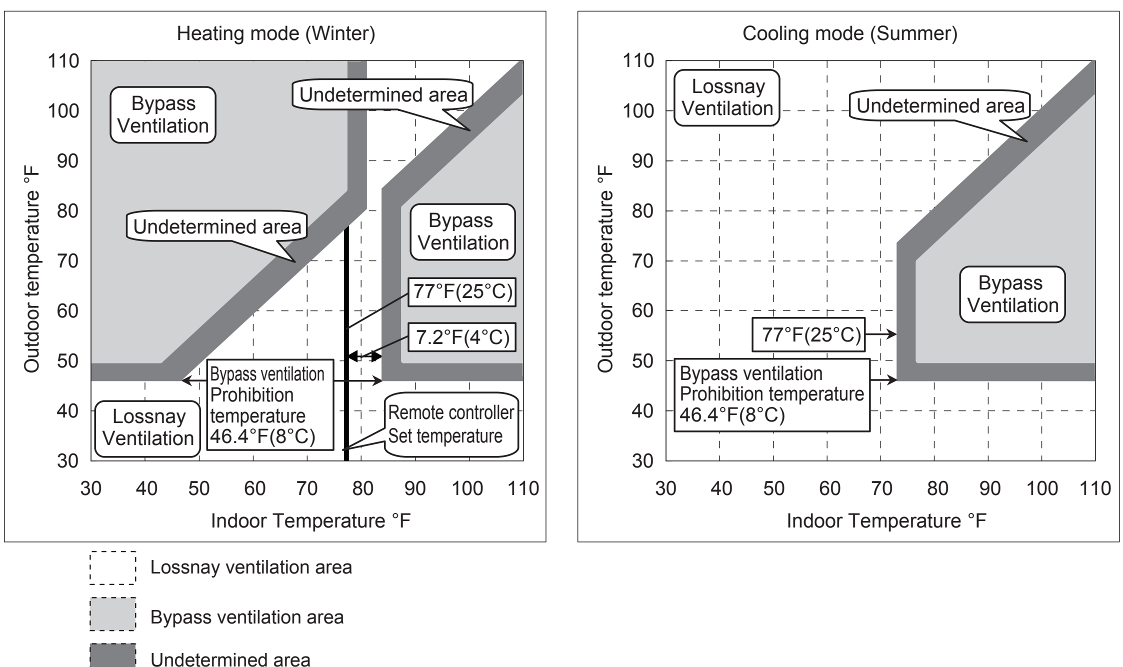
- When the outdoor temperature is 46.4°F (8°C) or lower. (Condensation prevention)
  When bypass ventilation prohibition has been set under this condition, the prohibition will be cancelled when the outdoor temperature goes from a temperature of less than 50°F (10°C) to one higher than 50°F (10°C).
- When there is an outdoor temperature (Outdoor Air) thermistor fault.
- When, in the automatic ventilation mode, there is an outdoor temperature (Outdoor Air) or indoor temperature (Return Air) thermistor fault.
- When Lossnay is set to the automatic ventilation mode and interlocked with P-Series or CITY MULTI indoor units set to the fan operation mode.

11.4 Automatic ventilation algorithm temperature map

Ventilation mode switching of Lossnay ventilation/Bypass ventilation in the automatic ventilation mode is in accordance with the following map.

a. Systems interlocked with P-Series and CITY MULTI indoor units

The map will differ depending on the operation mode that has been set with the A-control remote controller ler or the K-control remote controller for P-Series, or the MA remote controller or the ME remote controller for City Multi indoor units. The ventilation mode will be switched in conjunction with the set temperature of the air conditioner remote controller. Note that the “b” map will be followed while P-Series and CITY MULTI indoor units are stopped.

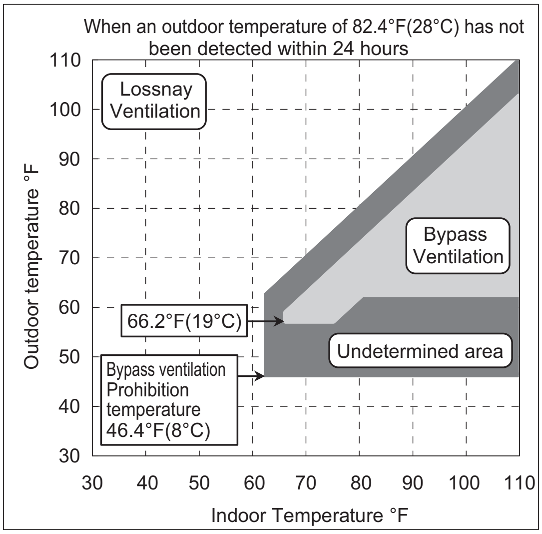


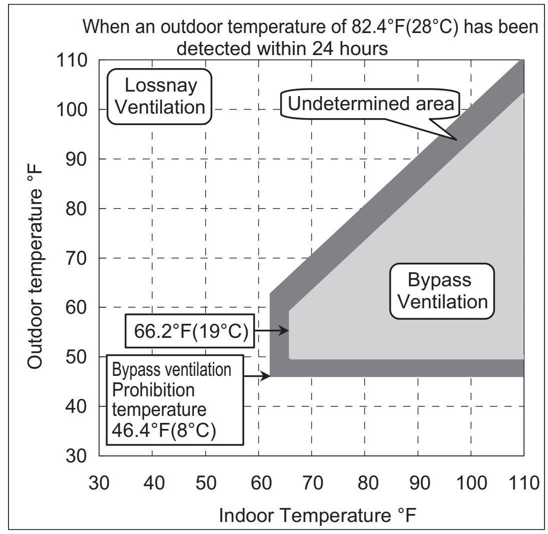
When operation starts under this condition, Lossnay ventilation will be activated.
When this condition is reached after operation starts, the current ventilation mode is maintained.

b. When there is no interlocking with P-Series and CITY MULTI indoor units

Pattern 1. Normal ventilation mode

When PZ-60DR-E is used, operation will be at the setting of automatic ventilation adjustment pattern “1” of the remote controller function selection. When PZ-60DR-E is not used, operation will be at the OFF setting of function selection switch (SW2-7) on the Lossnay circuit board.





Lossnay ventilation area

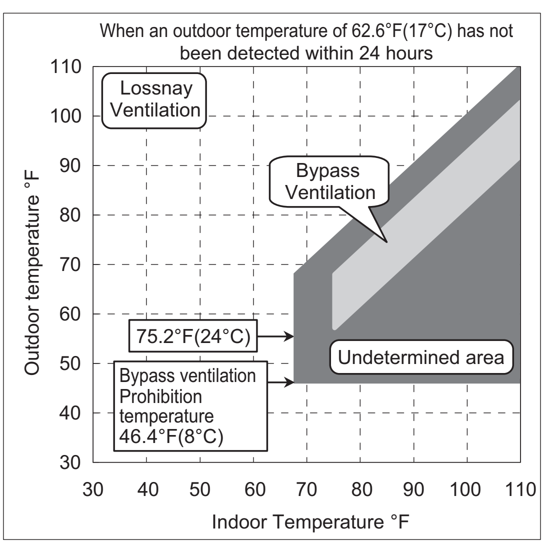
Bypass ventilation area

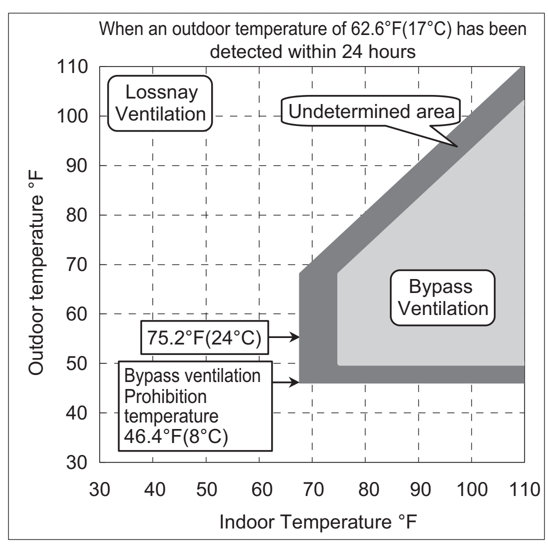
Undetermined area
When operation starts under this condition, Lossnay ventilation will be activated.
When this condition is reached after operation starts, the current ventilation mode is maintained.

Pattern 2. Outdoor cooling priority mode

When the outdoor temperature is lower than the indoor temperature, this mode actively takes in the outdoor air for cooling.

When PZ-60DR-E is used, operation will be at the setting of automatic ventilation adjustment pattern “2” of the remote controller function selection. When PZ-60DR-E is not used, operation will be at the ON setting of function selection switch (SW2-7) on the Lossnay circuit board.





Lossnay ventilation area

Bypass ventilation area

Undetermined area
When operation starts under this condition, Lossnay ventilation will be activated.
When this condition is reached after operation starts, the current ventilation mode is maintained.

11.5 Ventilation mode change recommendation display

When PZ-60DR-E is used and the ventilation mode is set to Lossnay ventilation or bypass ventilation, "RECOMMENDED" and "VENTILATION MODE" may be displayed alternately (for 10 minutes maximum). This function informs the user of the suitable ventilation mode according to the automatic ventilation algorithm. When a ventilation mode change recommendation has been displayed, more comfortable ventilation can be provided by pressing the "Function selector" button of the remote controller and switching to another ventilation mode.
(We recommend that "AUTO" be selected for the ventilation mode; however, there is no problem in leaving the ventilation mode unchanged with "RECOMMENDED" "VENTILATION MODE" displayed.)